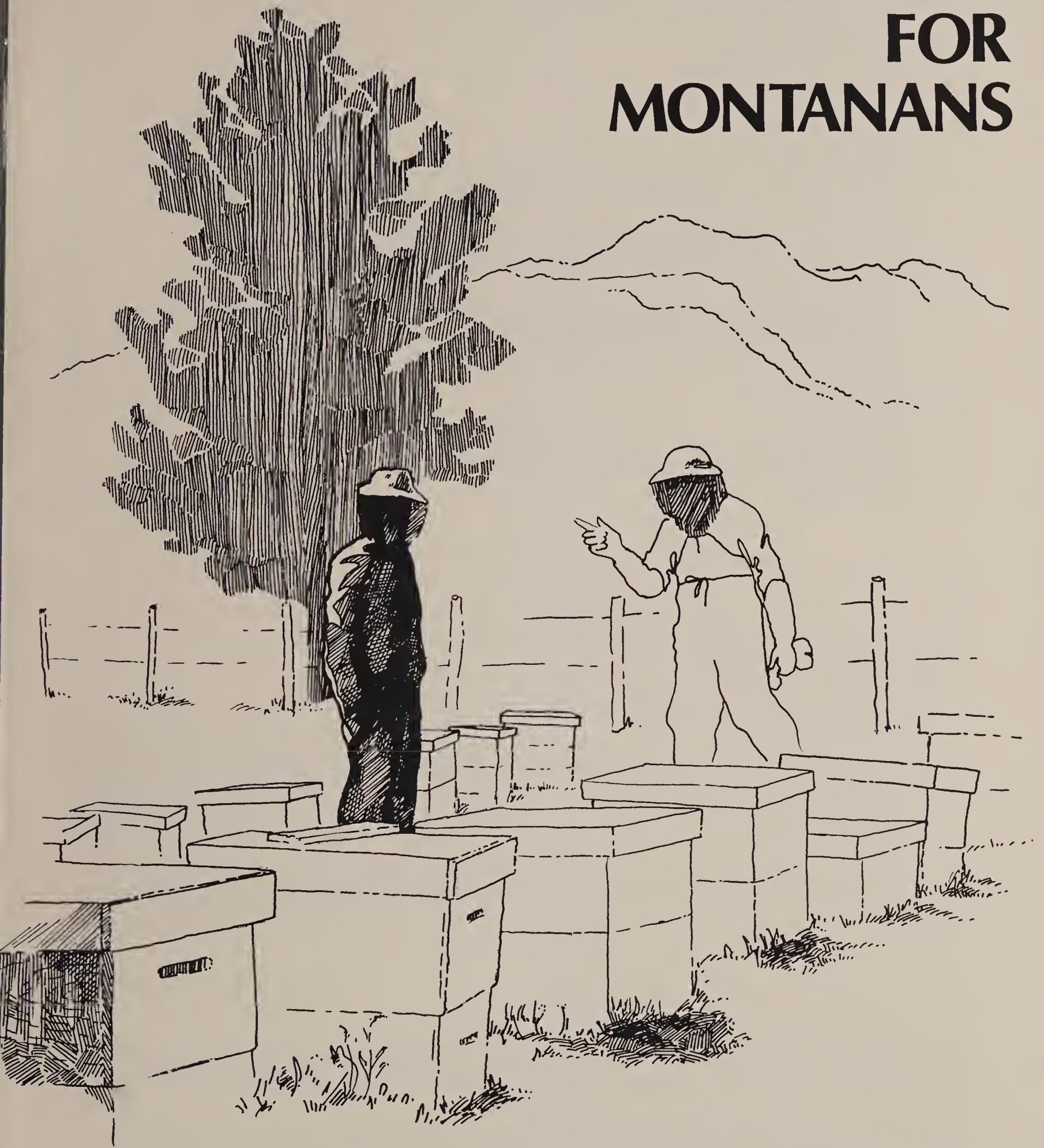
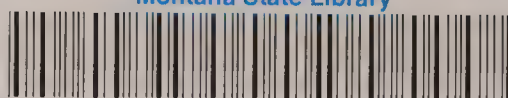


BEGINNING BEEKEEPING FOR MONTANANS



Cooperative  Extension Service
Montana State University, Bozeman
and
Montana Department of Agriculture
Bulletin 346 June 1975



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Author's note: The style of beekeeping recommended in this bulletin is based on the type of beekeeping the author learned while working at the USDA Bee Research Laboratory in Madison, Wisconsin under the leadership of Dr. Floyd Moeller. As a result, the "philosophy" on beekeeping is similar to that taught by Dr. Moeller.

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BEGINNING BEEKEEPING FOR MONTANANS

by
Willard A. Kissinger
State Apiarist*

This publication is intended for individuals with little or no knowledge of beekeeping. It is far from complete and is intended to serve only as the very beginning in the study of beekeeping. Many good books have been published on this topic, and the amateur beekeeper would do well to purchase one or more of the following:

“First Lessons in Beekeeping” -
C. P. Dadant

“A.B.C. & X.Y.Z. of Bee
Culture” - A. I. Root

“The Hive and the Honeybee” -
Edited by Roy A. Grout

In addition, he should subscribe
to one or more of the better known

bee periodicals such as
“Gleanings in Bee Culture” or
“American Bee Journal,” as well
as obtain additional beekeeping
pamphlets sometimes available
from county Extension offices.

Considerations Before Obtaining Honeybees

Selecting A Bee Yard

Before a beginning beekeeper obtains honeybees he should take into account several considerations. First of these is the location of his bee yard. There are relatively few areas in the state which would not support at least one or two colonies of bees. An area in which many crops secrete nectar throughout the summer is highly desirable. For example, bees need a buildup honey flow period in the spring prior to the

*Montana Dept. of Agriculture, Helena.

main honey flow. This spring flow usually comes from willow, dandelion, white dutch clover and wild flowers. These along with various early fruit blooms (choke-cherry, apple, buffalo berry, etc.) usually make up the buildup flow.

Attention to the following points will help in the selection of a good location:

1. The apiary should be in an area easily accessible by truck or other vehicle the year round.

2. It should be located in a disease-free area (this information can be obtained from the state apiarist).

3. Located 3 to 6 miles away

from the nearest apiary to prevent the spread of disease from other bee yards.

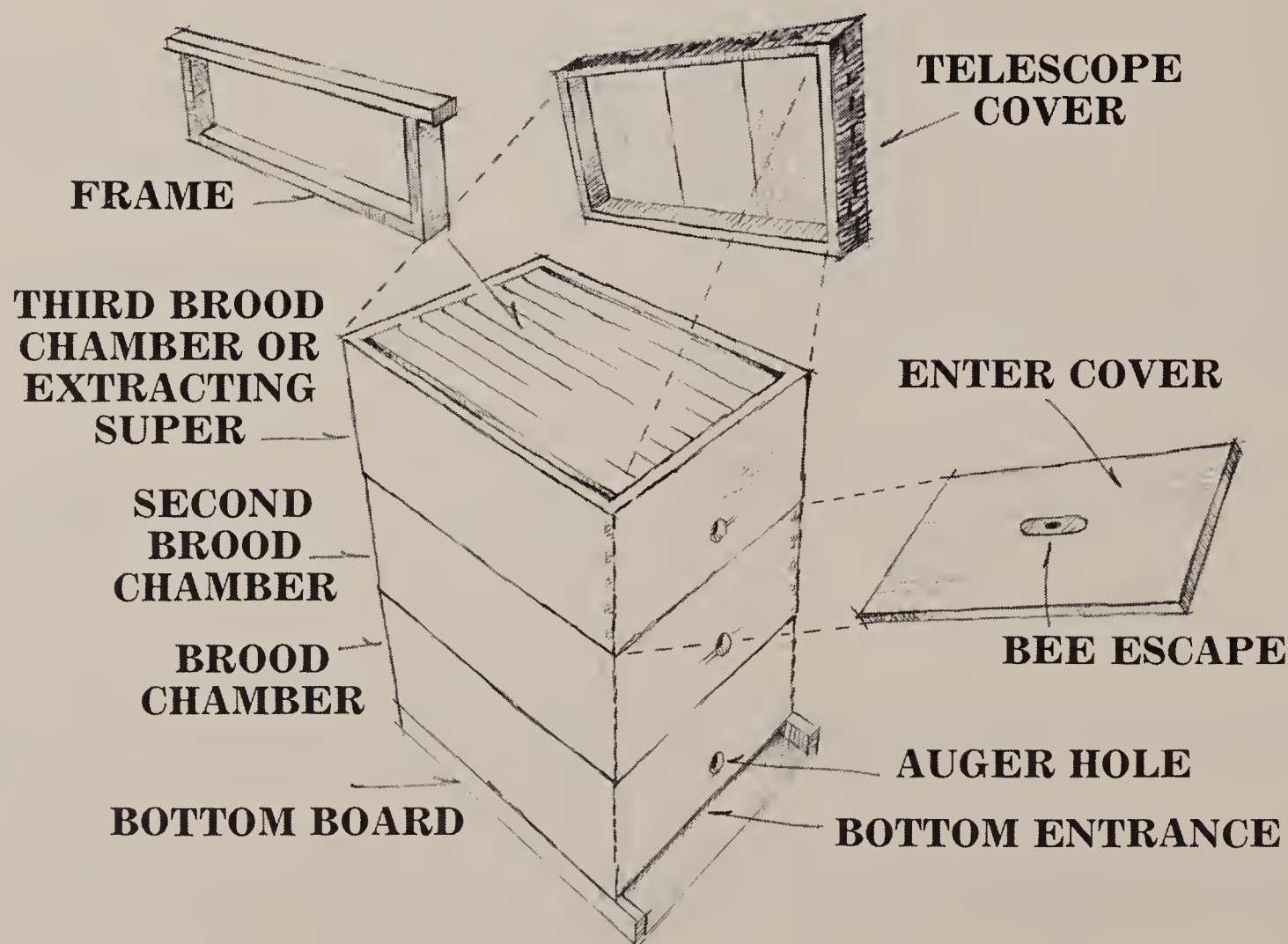
4. Located in an area free from possible pilfering.

5. Away from cultivated areas or else have high vegetation around it, causing bees to have a high flight path so that field workers and ranch stock are not stung.

6. It should have adequate wind protection and sunlight.

7. Proper air and water drainage.

8. A source of water within a one-half mile range.



It is important to have proper hive equipment.

The colonies themselves should be placed irregularly, leaning slightly to the front on a south-facing slope, and also face as much as possible towards the east. A location having most of these points should be planned for well in advance of the placement of the bees.

Bee Equipment

Before the beginner obtains bees he must first have the proper hive equipment.

It is often recommended that the beginner use standard 10-frame equipment ($9\frac{1}{2}$ inches deep) because it is most often interchangeable with other equipment and also has a good resale value. A normal hive consists of a bottom board, 2 or 3 brood chambers (preferably three), two or more honey supers, an inner cover, and a cover. These, excluding the

honey supers, are arranged as in the accompanying drawing.

Brood chambers will usually contain 10 frames (the wooden bars which support the comb). Each honey super usually contains nine frames. A one-inch diameter auger hole entrance may be drilled below the front hand holds of the brood chambers.

The inner cover is made of a sheet of tempered masonite or thin wood, with a strip nailed around all the edges on the side nearest the cover. This allows for an air space between cover and inner cover, which helps to insulate the bees from the heat in the summer and the cold in the winter.

It is best to place the bottom board on wooden planks or cement blocks so that the bottom board will not rot out. All parts of the hive should be well nailed and all outside surfaces given two coats of



Certain tools are essential to operate the apiary.

a good white or silver paint to preserve them.

Besides the hive equipment certain tools are essential to the operation of an apiary. They are: smoker, hive tool, bee veil, and gloves with long sleeves. The smoker is a cylindrical fire box with a funnel-like nose for directing the smoke and an attached bellows which forces air through the fire box. The hive tool is a flattened chisel-like piece of steel approximately 10 inches long which is used in separating the various parts of the hive. The bee veil is a net made either of screen, wire or tulle and fits over the entire head to keep the bees from the wearer's face. Gloves are used by many until they have gained confidence and proficiency in handling bees, after which they are usually discarded. However, even the best of beekeepers will keep a pair of gloves handy for use in the event the bees become ill-tempered.

Strain Of Bees Used

An important consideration

before buying honeybees is knowing the strain of bees desired. In the long run one is better off buying hybrid stock which has been bred for such characteristics as high honey production, good temper, and little tendency for swarming. Usually the leather-colored or three-banded Italians are considered to be more manageable by the beginner.

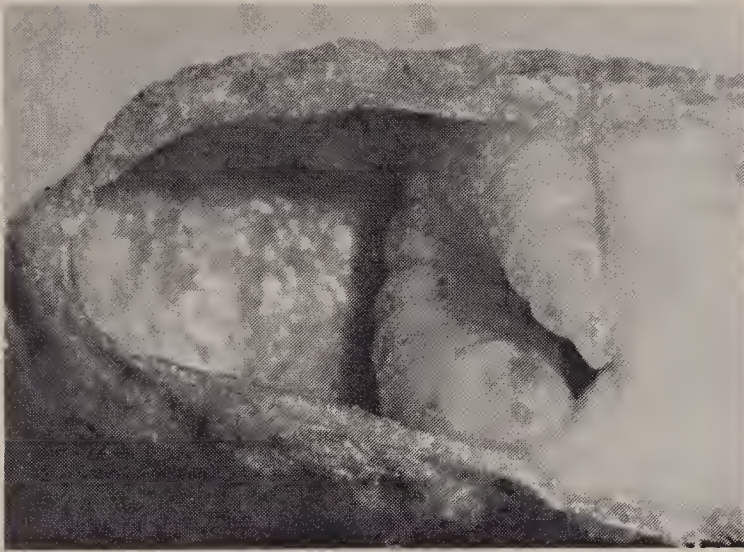
Bees may be secured a number of different ways, probably the most reliable of which is to order package bees and queens from a reliable producer in the south.

LIFE WITHIN THE HIVE

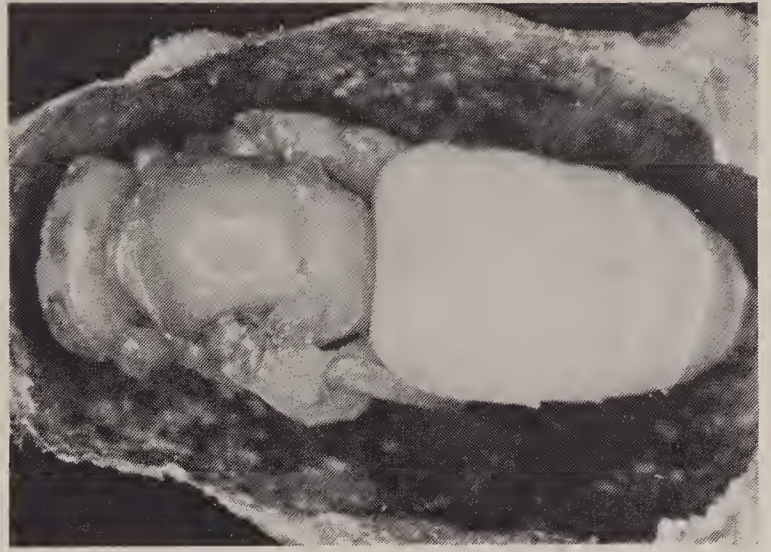
Before the beginning beekeeper happily begins to work with honeybees it is important that he has at least a brief knowledge of the life history of the honeybee, its behavior, functions and requirements. A normal colony of bees is made up of three types (castes) of individuals — the queen, the drones and the workers.



From left: worker, queen, and drone.



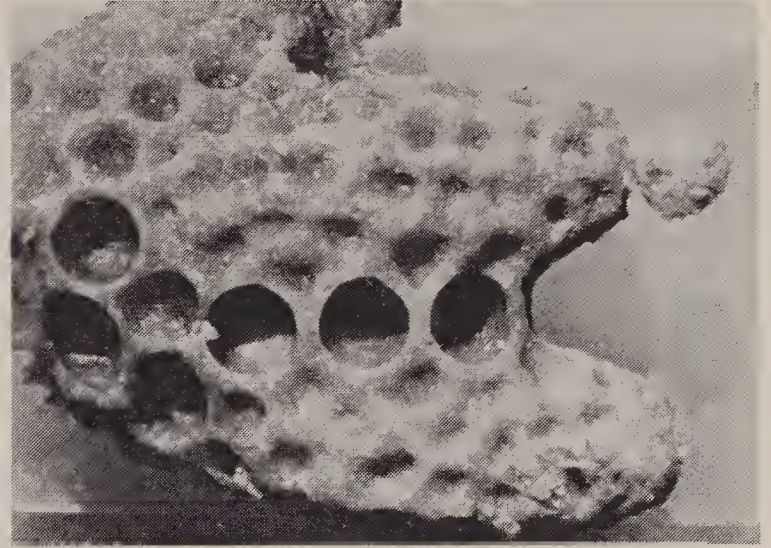
Cell cut open to show queen larva feeding on royal jelly.



Queen cell cut open to show mature pupa before emergence.



Queen emerging from cell.



Left cell: queen not emerged; two cells on rt, queens have emerged.

Queen Bees

The queen, contrary to common belief, is not the ruler of the hive. Instead, she might be considered a highly respected and jealously guarded prisoner. She is the mother of all the bees in the colony. It is obvious, therefore, that a really prime and prolific queen is essential for an efficient colony of bees.

The queen is hatched from a fertile egg which up until this time is the same as the egg of the worker. Any hatched eggs which are to become queens are fed a

very rich nitrogenous food called royal jelly which is secreted by the special glands in the heads of nurse bees. When fresh it is a watery, milky substance and gradually takes on a creamy consistency with a slightly yellowish color. All larva destined to become queens are fed continuously with royal jelly all through the five days of their larval stages. Cells of the queens are lengthened to allow for its growth so that the cells are extended out and downward from the normal brood surface about an inch, and so that it resembles a small peanut, both in color and texture of the cell surface.

A queen normally produces eggs of two kinds — fertile eggs which will become workers and queens, and infertile eggs which will become drones. A queen which has been improperly mated, or is not mated at all, will produce only drones. This situation, of course, is highly undesirable and the queen must be replaced, or as it is said in the language of the beekeeper, the hive must be requeened. Old queens which are failing will often lay many drone eggs, which is sufficient reason for requeening.

The old queen will normally be superseded or replaced by a new queen produced from one of her own eggs when she starts to fail. However, the attentive beekeeper will notice signs of queen failure before she is actually replaced.

There have been records of queens laying for as long as seven years, under normal conditions it is highly desirable to requeen every year or two. A good method of keeping records on each of the queens is to clip off one of her wings about one-half to three quarters of the way down when she is put into the hive during her first year. Then in the next year, if she still has a clipped wing, one will know he still has the old queen. If, however, the queen which is found in the hive has wings entire one will know that she has been superseded and that a young queen is now the mother of the hive.

Worker Bees

The worker bee is a sexually undeveloped female, different from the queen mainly because of the

type of food which was fed her while she was in her developmental larval stage. While the queen is fed royal jelly continuously during the five days of her larval stage, the worker bee is fed royal jelly only the first two and one-half days of her larval stage and fed bee bread (a pollen-honey mixture) the remaining two and one-half days.

The workers do all the work in the hive except laying of eggs. This work includes such things as feeding and keeping the brood warm, ventilating the hive, ripening the nectar, gathering nectar and pollen, performing guard duty at the entrance of the hive, building of comb and capping of the honey and brood.

The worker bees as previously mentioned are females which have not and never will develop sexually. In the event that a colony accidentally becomes queenless, workers may start laying eggs. This is known as a laying worker colony and is highly undesirable as the laying workers never mate and will only lay infertile eggs which naturally produce drone bees only. This condition may be characterized by the observance of several eggs in each cell and by the fact that the eggs are not uniformly placed. It may also be recognized by dwarf or undersized drones hatched from unevenly capped cells and dwarf drone brood and by the complete absence of worker brood. This colony must be requeened at once and if possible more workers bees should be shaken into the hive to boost its strength.

Drone Bees

The drones are the lazy “man about town” individuals of the bee hive. They do no work, not even to the point of gathering their own food or feeding themselves. The only function of the drone or male bee is to mate with a queen. From 5 - 15 drones will mate in flight with a virgin queen several miles from her home colony. The important fact here is that all mating takes place before the queen starts to lay.

The number of drones in a hive varies greatly according to the season of the year. Drones may appear in large numbers in the spring and early summer. At the close of the honey flow they are driven from the hive by the workers to perish. It is very

unusual to find any number of drones in a hive during the winter months. If many drones are found in the hive late in the fall one may well expect to find that the hive is queenless.

It has been estimated that in a strong hive during the honey producing season there are as many as 60,000 bees. Of these, there is normally one queen, one to several thousand drones depending on the season of the year. The remainder are worker bees.

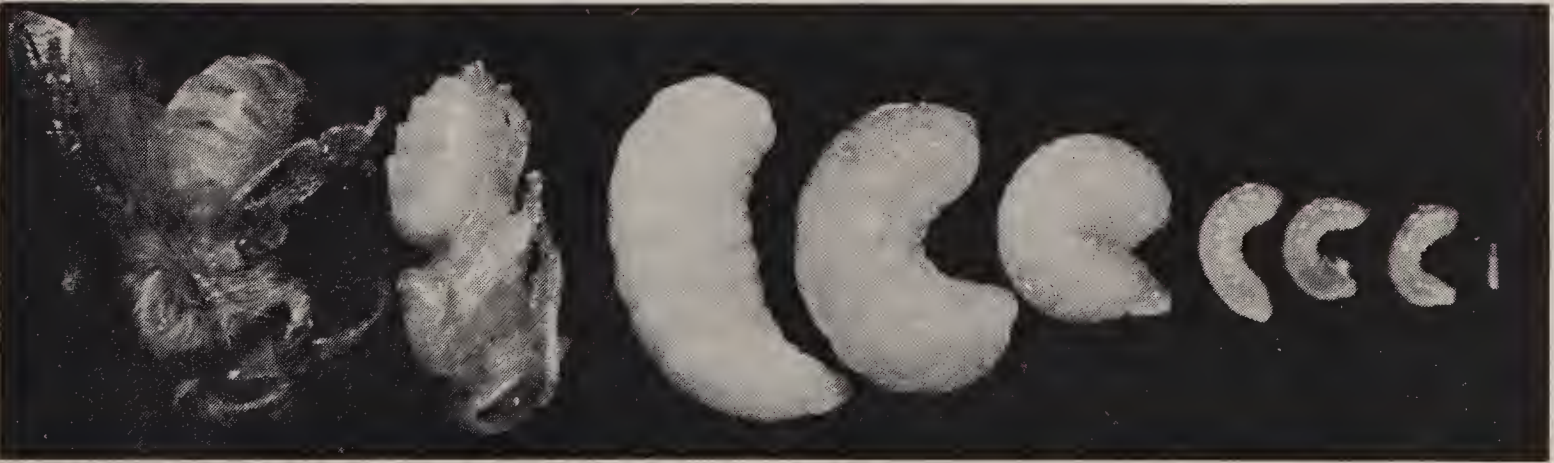
Stages in Life History

Bees have four stages in their life history: egg, larva, pupa and adult. The amount of time spent by each of the three castes of bees (queen, worker and drone) in each of the above-mentioned stages is given in the following chart.

Approximate Number of Days in Each Stage of Development

Stage	Queen	Worker	Drone
Egg	3 days	3 days	3 days
Larva	5	5	6 1/2
Pupa	7 1/2	12	14 1/2
	15 1/2	20-21	24
Bee leaves its cell on	16th day	21st day	24th day
Bee usually flies on	20th day	35th day	34th day

Bees from the egg stage to the time of emergence from the cell are referred to as brood.



Honey bee stages — from left, adult, pupa, larva, egg.

Swarming of Bees

Continued production of brood and the crowding of a hive with bees and honey until little room remains for the queen to lay eggs induces what is known as swarming. It is usually due to a congested condition of the hive and is nature's way of multiplying the colonies of bees.



A honey bee swarm.

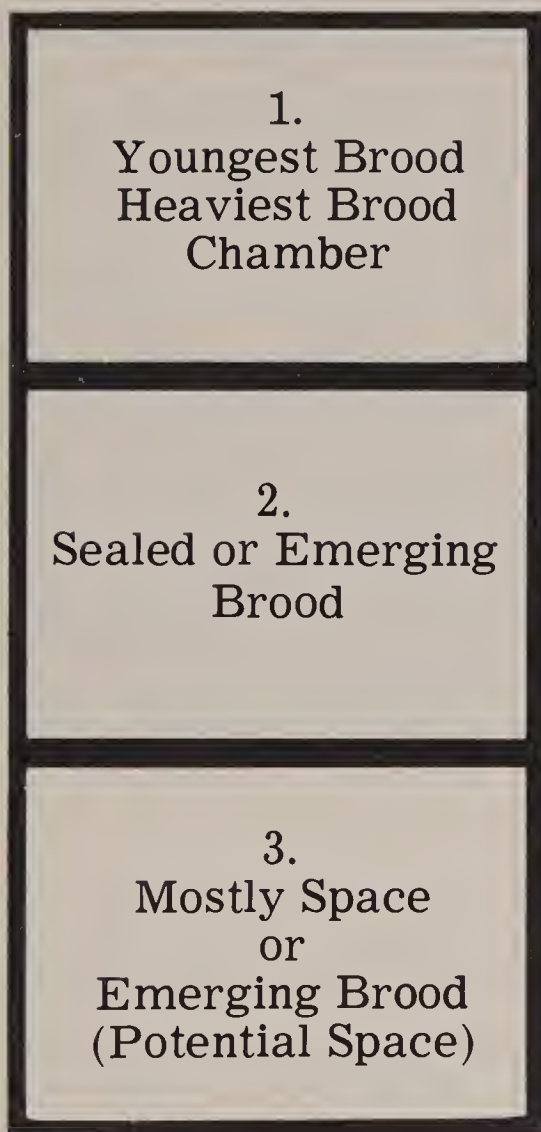
This swarming habit is undesirable from a honey-producing standpoint. A hive weakened by a swarm, and the swarm itself, will seldom produce

as much honey as the original hive had it not swarmed.

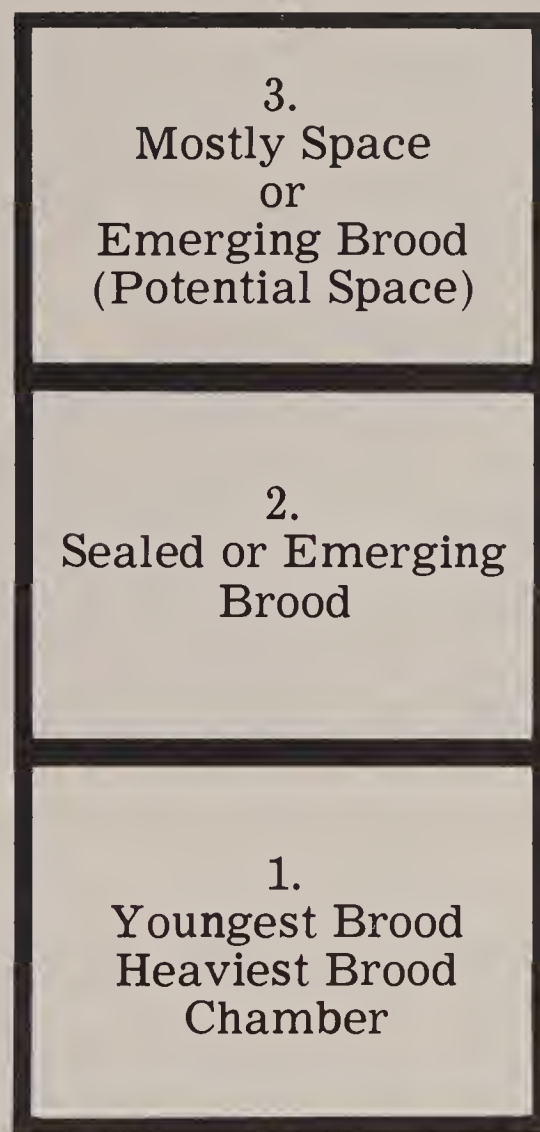
Swarming can be prevented or at least partially controlled by several methods, one of which is to inspect the bees every seven to ten days for queen cells and congested condition. Two general types of queen cells are built by the bees. One, a swarm cell, will usually be found along the bottom bar of the frame or hanging down in a broken section of the comb. It is usually advisable to cut off and destroy these swarm cells. The other type of queen cell is the supersedure cell, which is usually found protruding from the face of the comb and bent down to lie parallel along the face of the comb. If there is evidence of any failure of the old queen, one or two of the best of these supersedure or replacement cells can be left to produce a new queen. However, if it is known that a queen is old and about to fail, it is better to replace her with a new queen early in the season rather than let her be superseded.

Another method of swarm prevention involves reversing the hive bodies to reduce congestion within the colony. This method is based on the principle that the queen has a tendency to expand her brood nest in an upward direction which usually brings her into an area congested with honey. This being so, if the hive bodies are reversed so that the queen is laying eggs up into an area relatively free of congestion, the swarming impulse can be prevented. This method works best under a three-brood chamber management system. The following diagram shows the reversing procedure:

BEFORE



AFTER



Since after reversing, the bees will gradually move the honey from the bottom brood chamber into the top one, it is necessary to reverse on approximately 10-14 day intervals. Reversing should begin around the first or second week of May and end when the main flow begins (usually around July 4).

It is also important that one sees to it that the bees always have plenty of room to store honey. A common practice is to watch the honey super and when honey is partly capped ($\frac{1}{4}$ to $\frac{1}{3}$ full) in the first, add another super, raising that which was partly capped above the new super.

GETTING STARTED IN BEES

Package Bees

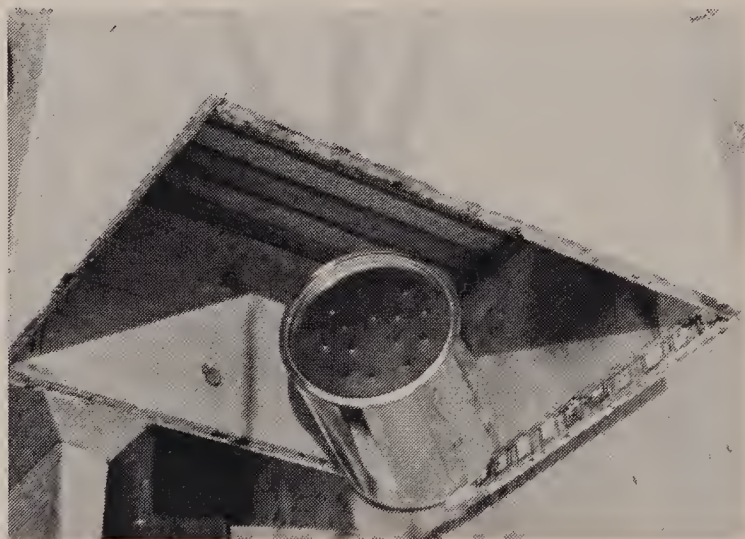
Once the beginning beekeeper has acquired the necessary hive equipment, tools, bee yard location, and a basic knowledge of bees he is ready to start one or more colonies of bees. Bees are most often introduced into a colony by use of packages of bees bought from a producer in the south. The person should place his order for packages in January or February and have them arrive approximately two weeks before the dandelions begin to bloom. A



Package bees being sprayed with sugar syrup just prior to introduction into hives.

three-pound package plus queen should be ordered for new equipment and a two-pound package, plus queen, for equipment in which the cells in the combs are already drawn out. The actual installment should take place on a cool day or at dusk so that the bees will have little tendency to drift. Several times just before release the bees should be sprayed with a thin sugar syrup consisting of 40% granular sugar and 60% water by weight. This can be applied with a new unused paint brush or a garden pressure sprayer which wasn't used previously for pesticides. Immediately before installment, the bees should be wetted down thoroughly with syrup so that they cannot fly. Half the combs in a single brood chamber should be taken out and the bees dumped onto the bottom board. The bees are then spread out, the combs replaced, and the inner cover put on. The queen is

then thoroughly wetted with syrup, released from her cage, and put down among the frames through the inner cover hole. A ten-pound pail of sugar syrup (2 parts sugar, 1 part water) with friction top lid is then inverted over the inner cover hole. Six to ten holes punched from the inside out in the lid is sufficient. A good punch for making the holes is an old ice pick or similar instrument. An empty super (one



Syrup can feeder with holes punched in lid.

with frames removed) is then placed on top of the brood chamber to act as a ring around the syrup can, and the top cover is then placed over this. The bees should be left alone three to five days so that the new queen is accepted. On the fifth day the packages should be checked to see that they are "queen right" (the queen is laying eggs) and the syrup can refilled. If there is no pollen available from dandelion, willow or other sources, it would be well to feed the bees a cake of pollen substitute prepared in the following manner:

1 part by weight of brewers yeast
2 parts expeller type soybean flour

Moisten the mixture with sugar syrup made from equal parts of sugar and water until it becomes the consistency of putty. Place about 3/4 lb. on a piece of wax-paper and place it directly over the center of the cluster, leaving the paper on the top. It is well to feed colonies started from packages both sugar syrup and pollen substitute as long as they will take it or until a good honey flow is in progress.

On approximately the 20th day after installment of the package add a second brood chamber. Whenever an undrawn chamber is added, the queen should be "baited up" into it by putting partially drawn combs from the bottom into the center of the upper brood chamber, being careful not to split the lower brood area. Around the end of June the first super should be added. From then on the supers should be added as necessary.

Manipulation of the Bee Hive

When manipulating a hive of bees the beginning beekeeper should be aware that he may occasionally be stung. The stinger is a modified ovipositor, or egg-laying guide, in the worker bee (needless to say, the drone cannot sting). This stinger or ovipositor is, of course, located on the tip of the abdomen and is attached to a pouch or so-called "poison sac". When the bee stings, its stinger is torn out and left in the wound of its victim, along with the poison sac. This bodily injury to the bee causes its death within a short while.

When a person is stung, his first impulse is, and should be, to remove the stinger, but **not** by the method most often used. **Do not** grasp between the fingers the part of the stinger protruding from the wound and pull it out, as the pressure of the fingers on the poison sac will only force more of the bee's venom into the victim. Rather, one should scrape out the stinger with the back of a finger nail or the hive tool so as not to squeeze the poison sac.

In the event of a severe reaction to a bee sting (nausea or asthmatic reaction), not merely a local burning sensation or swelling, one should take the person immediately to a physician. There are rare reports of bee stings proving fatal.

The bees should be inspected every 7 to 10 days for presence of disease, condition of brood, and availability of storage space for surplus honey.

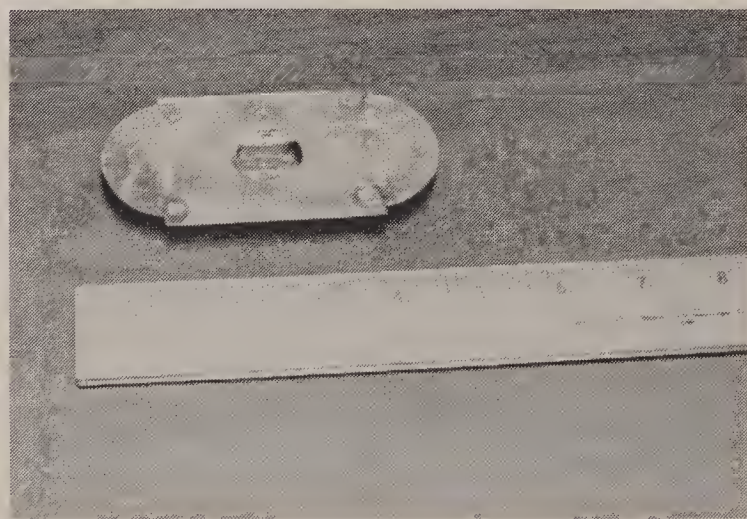
Inspection and handling of the bees may be accomplished in the following manner: ignite the smoker material (old burlap, cotton rags, wood chips and a number of other organic materials may be used as fuel). When the material is burning well, place it in the smoker and cover it with more fuel to extinguish any flames that may be present. Get the smoker smoking well and put on the veil and gloves. Blow two or three gentle puffs of smoke into the entrance of the hive to drive the guard bees back, insert the hive tool under the top cover and gently remove. The inner cover is then raised at one corner and a few puffs of smoke gently sent into the hive through the top. Remove the inner cover and the supers on the hive, using smoke to drive the bees down as needed. Too much smoke may unduly excite the bees and cause them to become troublesome.

Next, remove one of the outside frames from the brood chamber. Look the frame over carefully to make sure the queen is not on it and then lean it up against the front corner of the hive. The beekeeper should always be careful to stand at one side or at the back of the hive so as not to obstruct the flight of incoming field bees. The extra room obtained by removing one frame will give ample room within the hive so that manipulation of the remainder of the frames may be done without injury to the bees or brood. When re-assembling the brood nest it is best that the beginner re-assemble it in the same manner as it was before it was removed or manipulated. If the super is one-half or more filled

with honey, it should be raised to the top and a new or unfilled super placed under it. Full supers may be removed when from two-thirds to three-quarters of the honey is capped over with wax. This is to assure that the honey has ripened sufficiently.

Honey Removal and Extraction

Before the honey can be extracted, it must first be removed from the colony. There are many ways of doing so; however, two lend themselves well to the hobbyist since they are both easy and inexpensive. The first method involves brushing the bees off of each honey comb with a bee brush (available from any bee supply company) as they are removed from the honey supers. The bees should be brushed down in front of the hive, and the comb immediately placed into an empty super rim which should be placed behind the hive. It is important that this process be done quickly especially in the fall when robbing may be a problem.



Porter bee escape.

The second method involves removing the inner cover from the top of the hive and placing it below the honey supers which are to be

removed. A Porter bee escape is then placed in the inner cover hole and the supers replaced on top. The bee escape is so designed that it will let bees pass through from the top, but not from the bottom. Usually within two days most of the bees will have left the honey supers. To insure the effectiveness of the bee escape method it is important that all the honey to be removed is sealed and that the equipment is bee tight.

After removal of the honey supers, the honey is ready to be removed from the combs. Again there are many and varied ways of extracting honey. Many hobbyists have a neighboring hobbyist or commercial beekeeper extract their honey for them, however, many also obtain their own equipment. If one does his own extracting it is important that it be done in a bee tight building to prevent robbing by neighboring honeybees.

The basic extracting equipment used by most hobbyists includes an uncapping knife, a small manually operated two or four frame reversible basket extractor, a settling tank (preferably stainless steel), and a supply of cheesecloth. The uncapping knife is used to cut the cappings off the sealed cells of honey. A long knife heated in hot water may be used or else an electrically heated uncapping knife may be purchased from any bee supply company.

Instructions for operating reversible extractors are usually included with any new extractor.

However, the following general guidelines can most often be used:

After putting the uncapped frames into the extractor baskets, spin the extractor from one-half to one minute so that part of the honey is removed from one side of the frame (side 1). Then reverse the baskets and spin the centrifuge for three to four minutes at 90 rpm or until all of the honey is extracted from the second side of the frame (side 2). Reverse the baskets again and centrifuge the rest of the honey out of side 1 of the frames. One point to remember when using an extractor is that one should start spinning the extractor at a slow speed and gradually increase it until the maximum rpm is reached.

After the honey is extracted it should be strained. This is easily done by straining the honey through four layers of cheesecloth into the settling tank. When the strained honey has settled for a period of time a white foam will settle on top of the honey. This can be easily removed by placing a wetted layer of cheesecloth on top of the foam. The foam will then adhere to the cheesecloth when it is rolled up.

Since a certain amount of honey will remain with the cappings when they are removed, it is necessary to drain them. This is done by placing the cappings in two or three layers of cheesecloth or a hardware cloth basket and letting them drain in a warm room above a settling tank for a week or more.

Overwintering

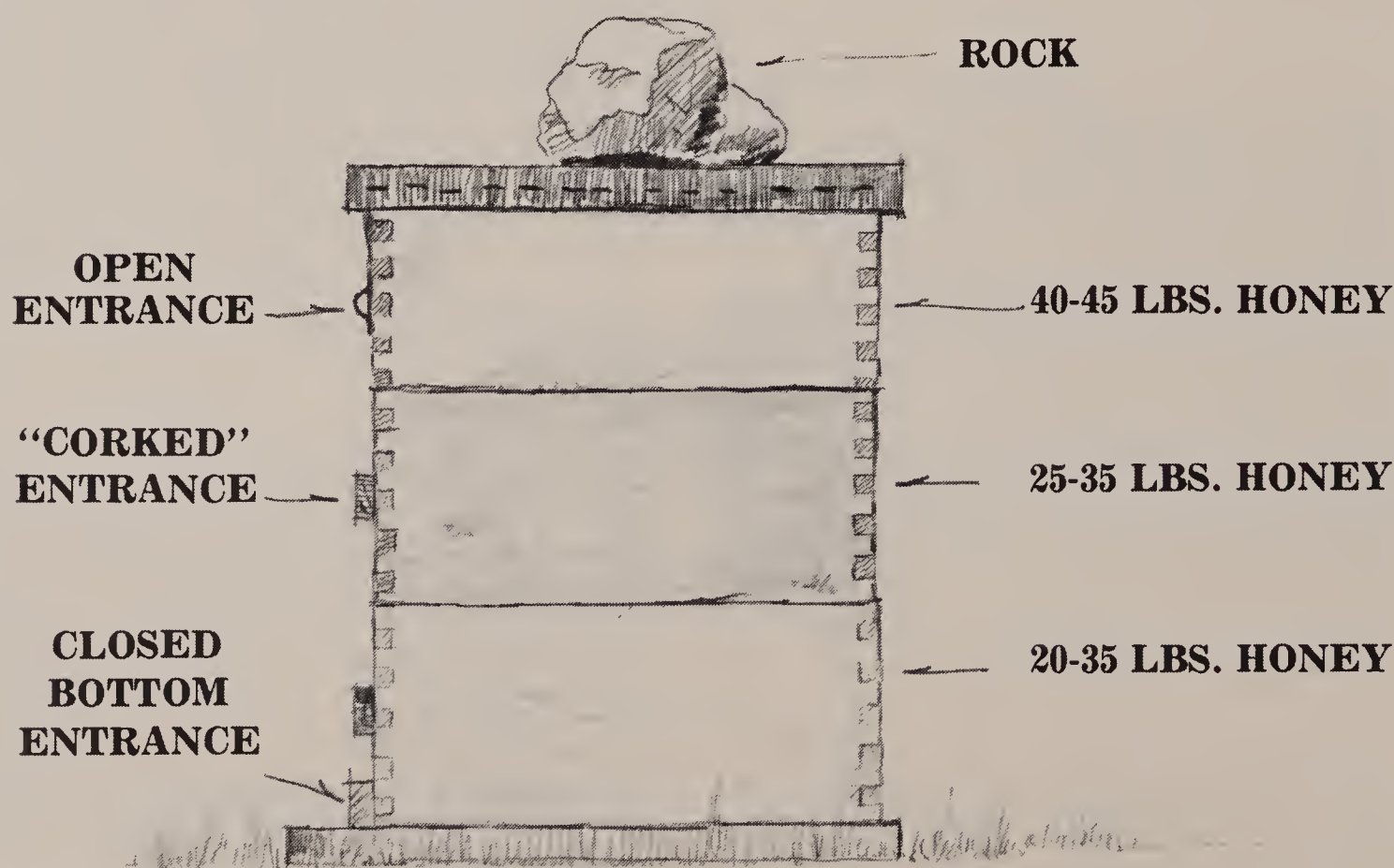
Northern beekeepers use different methods of overwintering. Their main concern is insuring that each hive has enough honey for the winter. One method involves using only two deep brood chambers, and another uses two deep brood chambers with a shallow super on top. However, if the hobbyist wishes to insure that the bees will have adequate honey for the winter, three deep brood chambers are recommended.

Preparing hives for winter is usually done in October. Since heavy packing is not necessary or recommended, one's main concern is restricting the entrance and also arranging the brood chambers so that the proper weight ratio is set up. Only colonies with large populations should be overwintered. The following diagram shows the overwintering setup of a colony. The colony may

be wrapped in black tar paper to seal any cracks and also provide for more absorption of the sun's heat.

The bottom cleat in the entrance is restricted or completely closed to prevent mice from entering, and if auger holes are in the rims, the top entrance is opened so that snow will have less chance of interfering with winter flight. Most of the honey should be in the top brood chamber since the winter cluster has a tendency to go up when it moves to new honey stores. The colony should have a total of approximately 90 to 100 pounds of honey in October for the winter and early spring.

In February the colonies should be checked to make sure the cluster is in contact with honey. The combs should be re-arranged if necessary and extra combs of honey can be added if necessary and available.



BEE DISEASES

Identification

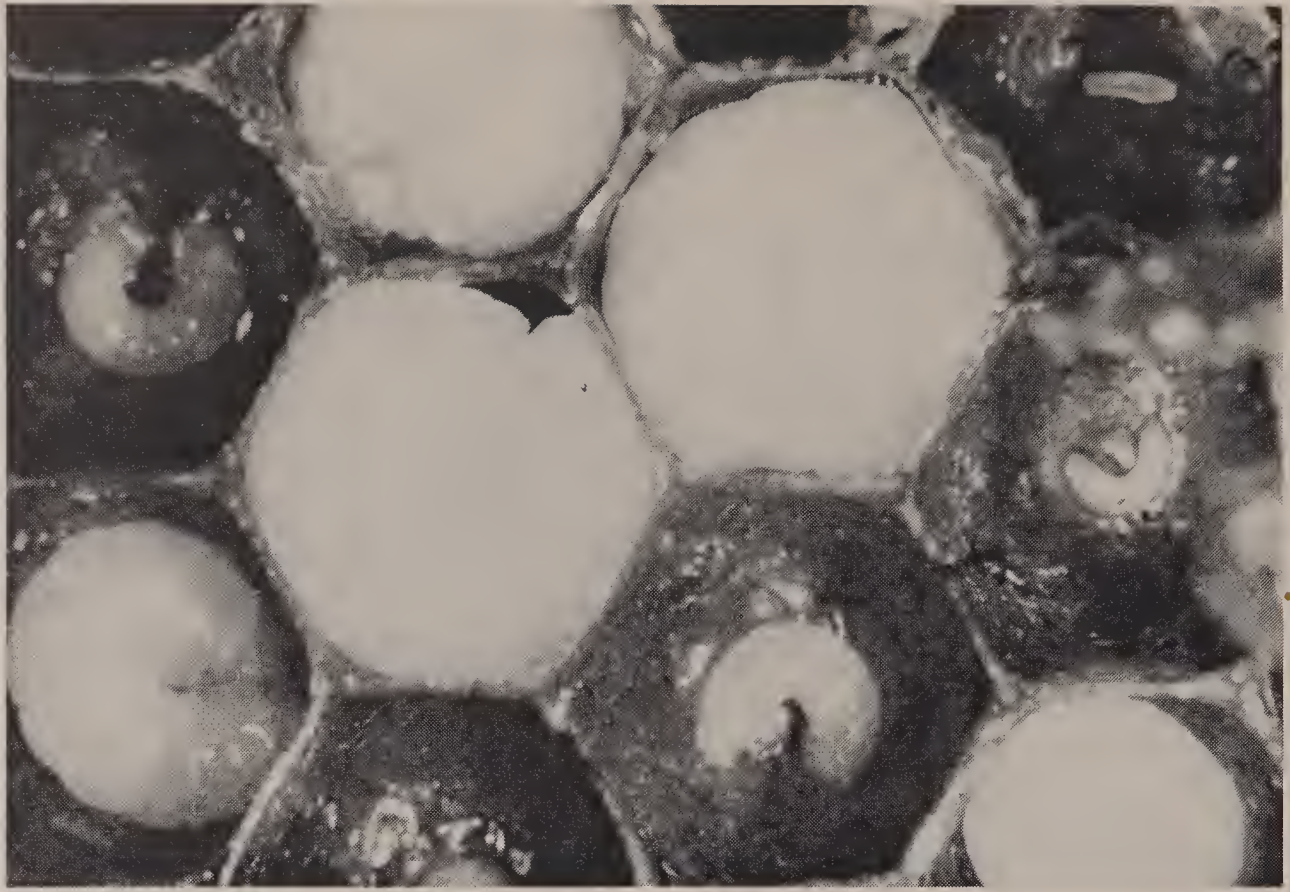
There are two main classifications of bee diseases: adult bee diseases and brood diseases. However, beginning beekeepers should be mostly concerned with brood diseases since they are most damaging to a colony.

There are three main brood diseases which should be of concern to any Montana beekeeper, and to the uneducated eye may appear quite similar. They all may be characterized by an uneven pattern in the brood or what is known as patchy or spotty brood. This merely means that the brood is scattered with many unfilled cells. The capped cells may or may not be punctured but usually have a slight off color and are nearly always sunken (concave appearance rather than convex). When these symptoms are observed, the beekeeper should become quite suspicious and start tearing the cappings from some of the suspected cells.

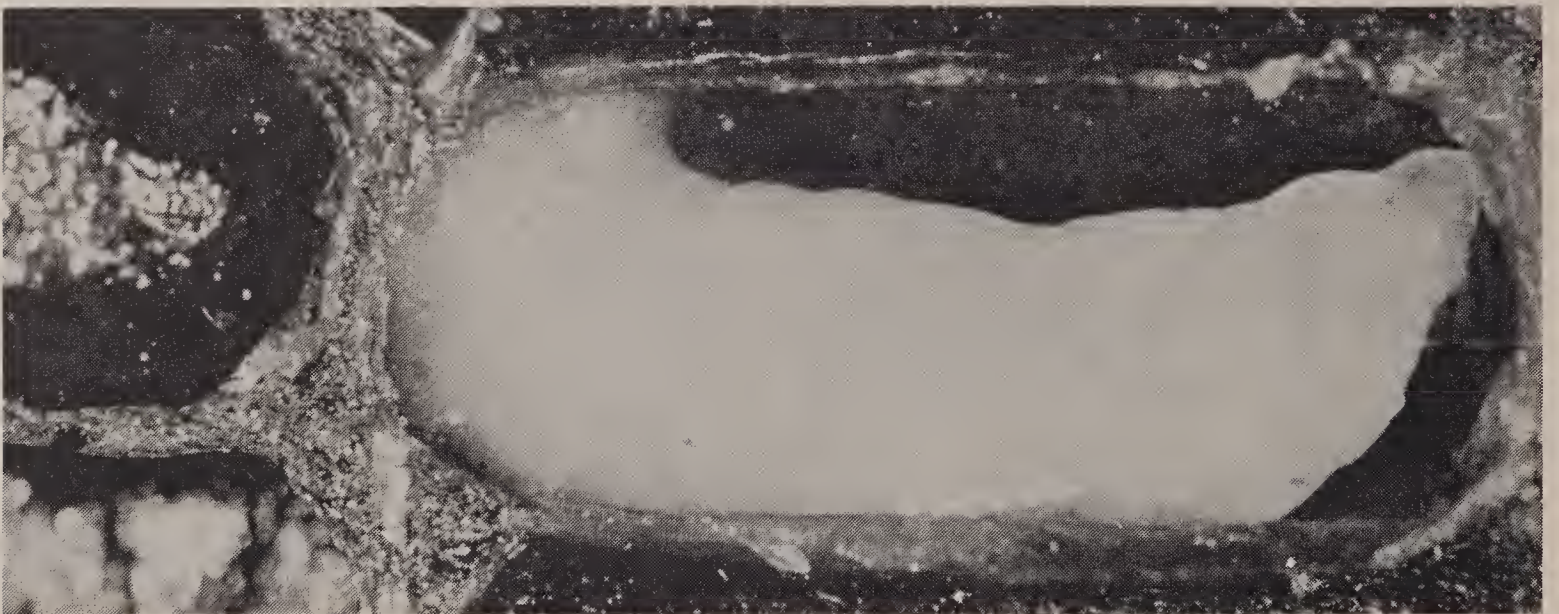
If it is **American Foul Brood** (AFB) it may have an offensive odor somewhat similar to a glue pot. The larva will always be stretched out the full length of the cell and may occasionally have what appears to be a tongue cemented to the top of the cell. At this stage the diseased larvae will usually take on a slightly brown or tan color. If the body of a larva has started to break down, it will have

a dark brown (almost coffee color) semi-liquid appearance and, if a match stick or straw is poked into this mass and then pulled out, part of it will adhere and string out in a rather fine thread (like glue) for one-half to three inches. Diseased larvae which have completely dried out to scales in the bottom of the cell should be sent to the State Apiarist or to a competent bee man for identification. The only recommended control of AFB is kill the colony **in the evening when all field bees are in**. Then dig a hole, place entire hive and all bees in it, burn it completely and then cover over with 12-15 inches of dirt. Effective methods of killing colonies can be found out by contacting local beekeepers or the State Apiarist.

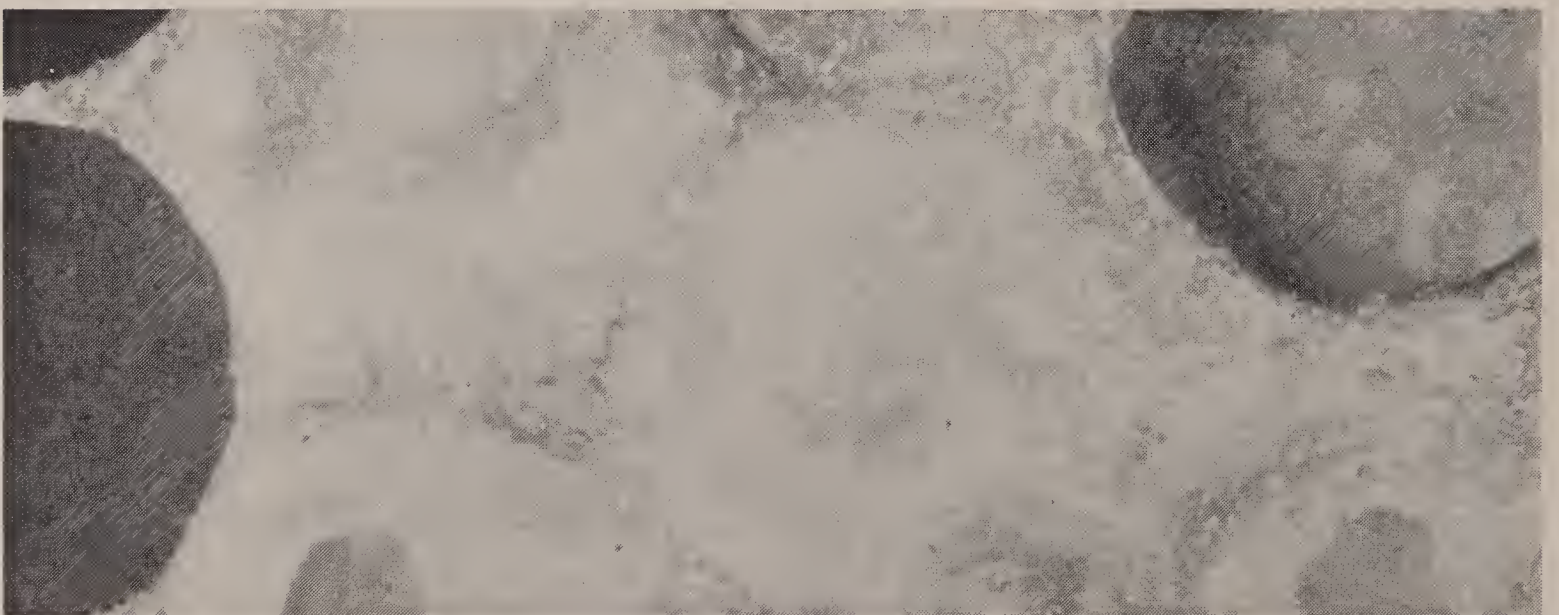
European Foul Brood. The external symptoms of European Foul Brood (EFB) are very similar to that of American Foul Brood. The notable exceptions are that the disease may occur in any part of the larval stage so that the dead larva may be in any position in the cell. If the contents of the cell are probed as in AFB it will not string out but will snap back like dead rubber. In advanced EFB there may be a tongue adhering to the top of some cells, however this is rare and if they are found a sample should be sent to the State Apiarist for accurate identification of the disease. Establishment of a good drug program will usually clean up European Foul Brood.



Normal brood — larvae in coiled stages.



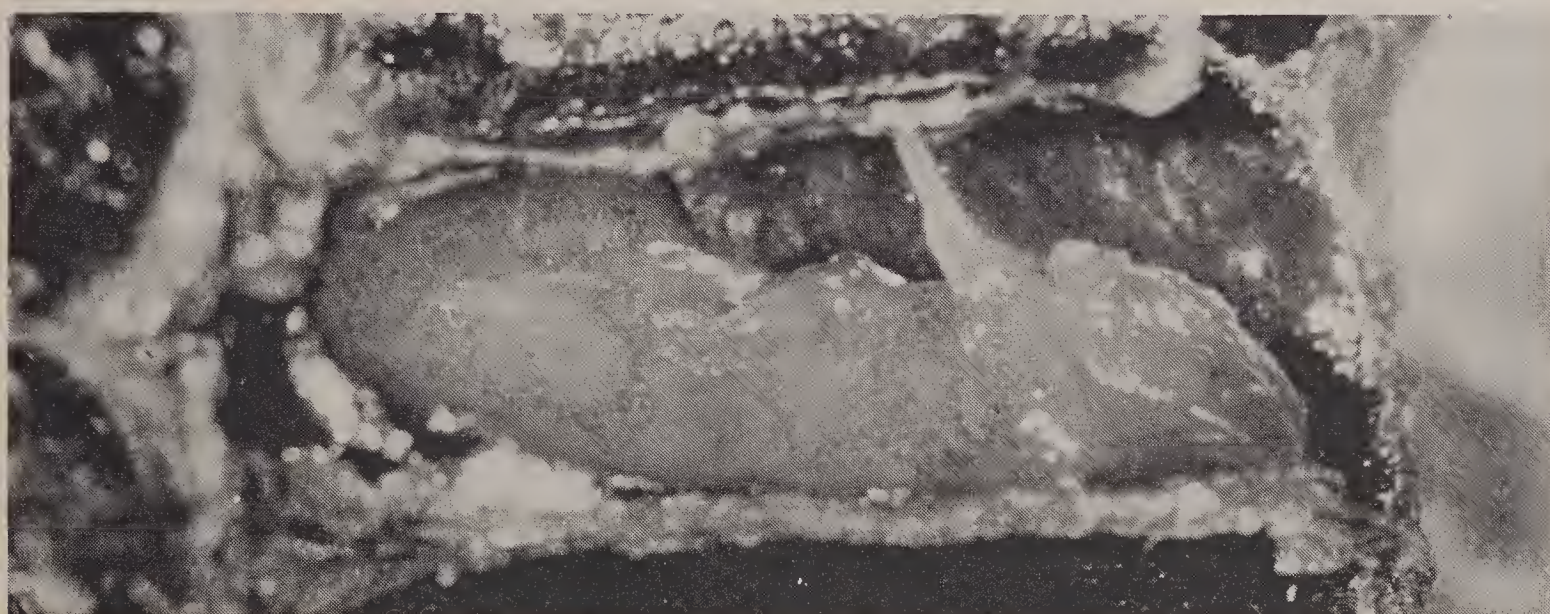
Normal brood — prepupal stage.



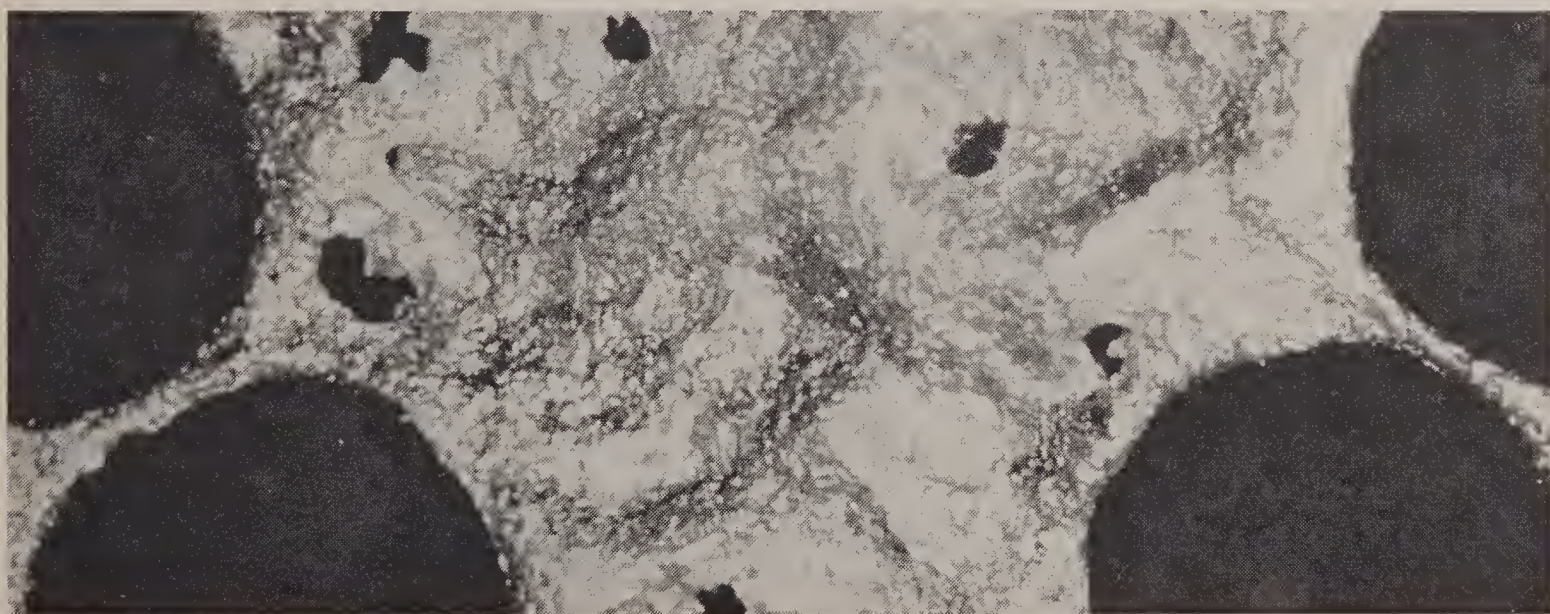
Normal brood — cappings.



American Foulbrood — diseased pupae showing ropiness.



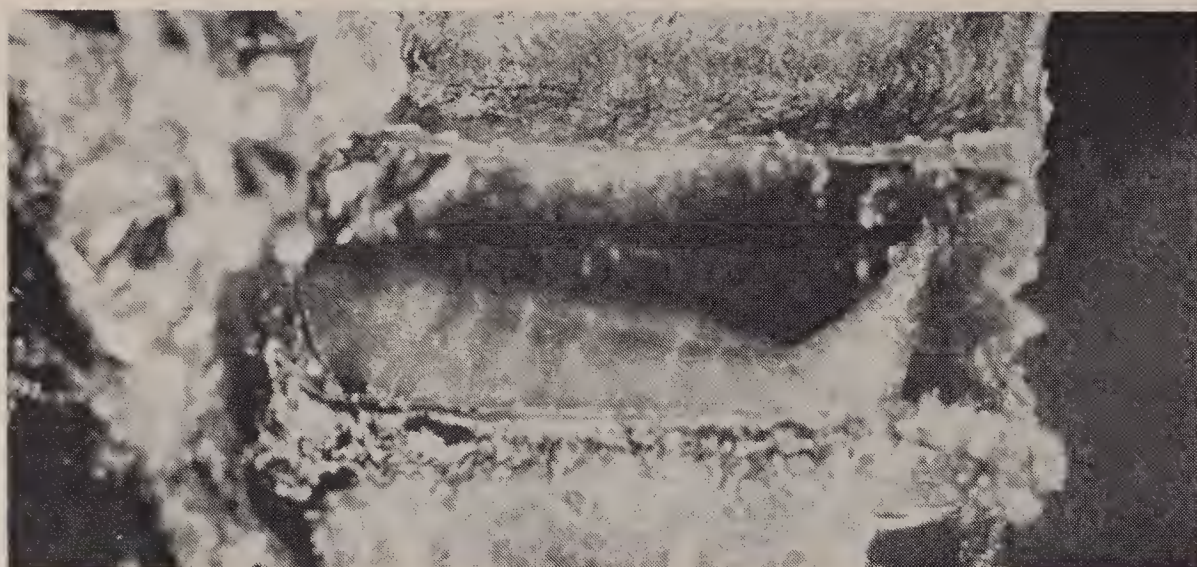
American Foulbrood — sideview of pupa in early stage.



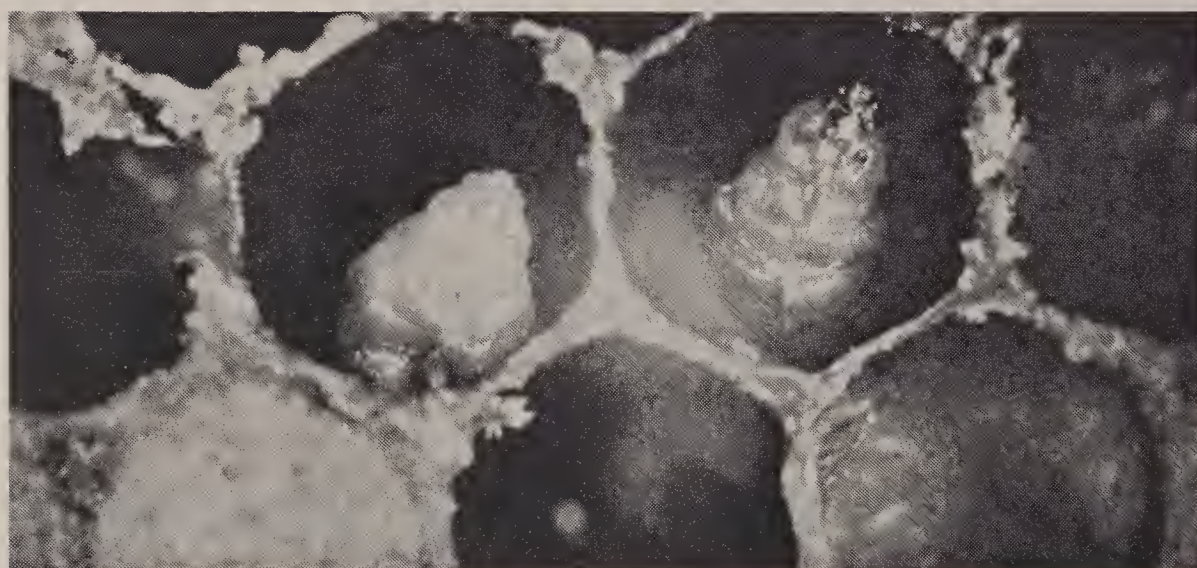
American Foulbrood — appearance of brood cappings.



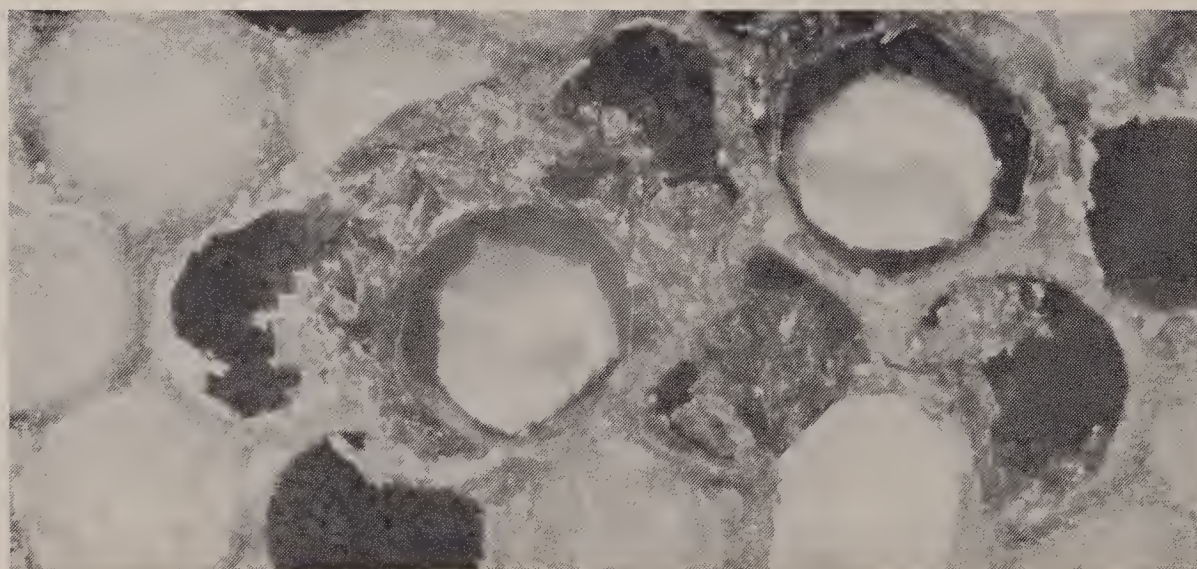
**European
Foulbrood —
diseased
larvae.**



**European
Foulbrood —
False tongue.**



**Sac brood —
prepupae,
front view,
cappings
removed.**



Chalkbrood.

Sac Brood. The external symptoms of Sac Brood are similar to AFB and EFB, however there are certain distinguishable characteristics. The head of the prepupae larva is darkened and protrudes upward in the cell, however the remainder of the larva's body is an off-white color. When the cell is probed the mass which was formerly the larva will come out entirely in a sort of sac-like bag or skin. This disease, while it could conceivably be of serious consequence, has seldom posed a problem to the beekeeper.

Chalkbrood. Another disease which is present in Montana but usually does not cause severe damage is Chalkbrood. The causal agent is a fungus which attacks the later larval stages causing a white fuzzy growth on the larva, hence the name Chalkbrood. The fungal growth on some larvae may vary from brown to black. After the disease has progressed in the larva for a period of time, the larva becomes loose in the cell in the shape of a white pellet, and can be easily removed from the cell.

Chalkbrood is usually more severe in the spring and is believed to be partially due to the inability of the nurse bees to maintain the proper brood nest temperature. The disease usually disappears or becomes less severe as the air temperature increases in the summer. Presently there is no treatment available to control Chalkbrood.

Any abnormal brood may be sent to the State Apiarist, Department of Agriculture, Helena, Montana, for free examination and

diagnosis. Simply cut a 4-inch square from the infected brood, place it in a cardboard or wooden box (tin, glass or a plastic bag will cause the sample to deteriorate), wrap securely in paper, and mail to the above address.

Drug Treatment Programs

Proper identification of brood diseases plus establishment of a good preventative drug treatment program is essential to insure the proper health and livelihood of bee colonies. The following shows several types of drug treatments used in beekeeping today.

American Foul Brood (AFB)

Preventive treatment: Gorge the colony in the spring or fall (or both) three or four times at 4- to 5-day intervals with the following (do not bulk feed):

Sodium sulfathiazole. 1/2 to 1 gram per gallon of heavy syrup (1 level teaspoon = 2 grams, use 1/2 level teaspoon per gallon).

Terramycin (TM25). 3.27 grams per gallon of heavy sugar syrup (1 level teaspoon = 4 grams, use about 4/5 level teaspoon per gallon).

Powers Formula For AFB

(also helps control EFB)

15 oz. fine grind mineralized
salt or powdered sugar

5 oz. TM 10

1 oz. sulfa

21 oz. — One ounce to be fed each colony 3 different feedings, 10 days apart (in

spring). Two feedings should be fed in fall while there is danger of robbing.

Extender Grease Paddles

Formula:

18 tablespoons Terramycin
(TM-25)
3 lbs. vegetable
shortening
6 lbs. granular sugar

Mix thoroughly and wrap each paddy in wax paper. Many beekeepers heat the shortening to room temperature or just above to make mixing easier. Several beekeepers have also found that bakery bread mixers can be used very effectively to mix the paddies.

Treatment Size:

1/2 lb. paddies will treat 18 normal hives.
1/4 lb. paddies (used for packages and nucs) will treat 36 colonies.

USE — Unfold wax paper. Place paddies on the top bars in the brood nest area so that the bees are in contact with it, or in the center of the brood nest between the brood chambers. Under normal conditions the paddy can be expected to last six weeks. Treatments should be made in the spring and fall for best results.

STORAGE — Keep the paddies as cool as possible in storage.

European Foul Brood (EFB)

Treatment: Gorge the colony

three or four times at 4- to 5-day intervals with the following (do not bulk feed):

Terramycin (TM25) - 3.27 grams per gallon of heavy sugar syrup (1 level teaspoon = 4 grams, use about 4/5 level teaspoon per gallon).

Nosema

Treatment: Bulk Feed colony in late fall or early spring (or both) with about 1 gallon of heavy sugar syrup containing 5 grams of Fumidil B per gallon (1 1/2 level teaspoons per gallon). Do not gorge.

General Notes on Drug Treatments

1. Any or all of the above medicants can be fed in the same syrup at the same time, if necessary.

2. Never feed medication to a colony during a honey flow or at least 4 to 6 weeks prior to the start of a major honey flow. (Bees will simply store the syrup as so much additional nectar during a honey flow, so it does no good at that time, besides it may contaminate the honey crop.)

3. Use a heavy sugar syrup, 2 parts of sugar to 1 part of water, by weight.

4. Never subject Terramycin or Fumidil B to excessive heat (lukewarm is o.k.), otherwise you will destroy part of the antibiotic properties. Storage of these antibiotics should be in refrigeration or deep freeze.

5. Sodium sulfathiazole is not destroyed by heat or long storage. It is a salt.

6. Gorging a colony is done by simply pouring 1½ - 2 pints of the drug-sugar syrup solution over the top bars above the brood nest. Bulk feeding is done by using feeder pails (inverted 1-2 quart cans with small holes punctured in the lid) or syrup feeder frames.

CONCLUSION

It is hoped that this very brief introduction to beekeeping will help the amateur beekeeper to succeed in the art of beekeeping. Proper management practices along with good weather conditions will usually ensure a reward of a good honey crop, plus the enjoyment of working with a truly interesting creature of nature.

NOTE: According to Montana law all bees kept in the state of Montana including those of hobbyists must be registered with the office of the State Apiarist, Department of Agriculture, Helena, Montana. Registration forms and copies of the bee law may be obtained from the above mentioned address.



Honeybee on alfalfa.